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(54) **Cassette for use in a label printer**

Kassette für einen Etikettendrucker

Cassette pour utilisation dans une imprimante d'étiquettes

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Description

[0001] The present invention relates to a cassette for use in a label printer.

[0002] A label printer generally comprises a print head which is controlled to print onto an image receiving tape medium or onto a consumable in the form of a continuous backing sheet on which pre-cut labels are provided. The image receiving medium is generally provided in the cassette which is received in a cassette receiving bay of the label printer.

[0003] Some cassettes are arranged such that the image receiving medium is drawn out of the cassette to a print zone defined between a print head and a platen of the label printer. Printing on the image receiving medium occurs at the print zone. In some cassettes, a print area is provided for accommodating at least part of the print head or the platen. Some cassettes may have an opening which allows the image receiving medium to exit the cassette housing on one side of the print zone, extend through the print zone and then to exit the cassette completely on the other side of the print zone.

[0004] Some cassettes also contain an ink ribbon. The ink ribbon thus may also pass across this print zone, following a similar path to the image receiving medium.

[0005] When the image receiving medium and ink ribbon, if present, pass across the area of the cassette defined for the print zone, foreign matter such as dust and dirt can contact, stick to and damage either or both of the image receiving medium and ink ribbon. Subsequent printing using the ink ribbon and image receiving medium may therefore be of poor quality.

[0006] JP2002-127533 discloses a thermal transfer ribbon cassette with openings on two opposite sides of the cassette through which a thermal head of a printer may be brought into contact with a thermal transfer ribbon within the cassette. The cassette includes a shutter which is slidable to open and close both of the openings.

[0007] JP61-164872 discloses a cassette having a take-up side casing and a payout side casing that are moveable towards and away from each other. When the two casings are moved apart, a recording medium that extends between respective spools in the casings is exposed.

[0008] GB2311765 discloses a tape holding case that has a housing defining a cavity in which is located a supply of image receiving tape that has a heat sensitive layer. The housing is constructed in a light tight manner to prevent exposure of the heat sensitive layer. The case has a pivoted door that maintains the light-tightness of the case when the case is not in use, but which is pivoted when the case is inserted into a printing apparatus to expose the tape.

[0009] According to an aspect there is provided label printer cassette as defined in claim 1.

[0010] Some embodiments of the present invention will now be described, by way of example only, with reference to the accompanying Drawings in which:

Figure 1 shows a cross-section of a cassette embodying according to one embodiment of the present invention;

Figure 2 shows a perspective view of the cassette of Figure 1;

Figure 3 shows part of the cassette of Figure 1 in more detail;

Figure 4 shows a perspective view of an unlocking mechanism in a label printer for unlocking a cover of the cassette of Figure 1;

Figure 5 shows a cross-sectional view of the unlocking mechanism of Figure 4, along line F-F of Figure 4; Figure 6 shows a perspective view of a cassette receiving bay of the label printer;

Figure 7 shows a cross section of part of the label printer showing the unlocking mechanism before the cassette of Figure 1 is inserted into the cassette receiving bay;

Figure 8 shows a cross-section view of the part of the label printer shown in Figure 7 and the cassette of Figure 1, as the cassette is inserted;

Figure 9 shows a cross-section view of the part of the label printer shown in Figure 7 and the cassette of Figure 1, with the cover of the cassette in an unlocked configuration;

Figure 10 shows a cross-section view of the part of the label printer shown in Figure 7 and the cassette of Figure 1, with the cover of the cassette in an open position;

Figure 11 shows a perspective view of the cassette of Figure 1, with the cover in an open position;

Figure 12a shows the underside of the cover ;

Figure 12b shows the part of the printer which interacts with the EEPROM of the cover;

Figure 13 shows schematically parts of a label printer;

Figure 14 shows an exploded view of a cassette;

Figure 15 shows a platen lock member and the cover where the platen lock member is in a lock position where the platen roller is locked;

Figure 16 shows the platen lock member of Figure 15 in an unlock position such that the platen can move;

Figure 17 shows a perspective view of the underside of the cassette receiving bay showing the platen lock member in the unlock position; and

Figure 18 shows in detail the interaction between the platen lock member with the platen support member in the lock position.

[0011] In the Figures, like reference numerals indicate like parts.

[0012] The cassette shown in the Figures is arranged to house one or more supplies of print medium. The print medium may be an ink ribbon and/or may be an image receiving medium. An image receiving medium may be in the form of an image receiving tape having an upper image receiving layer for receiving an image and a re-

movable backing layer secured to the upper image receiving layer by a layer of adhesive such that after an image has been printed the backing layer can be removed and the image receiving layer can be stuck to a surface. This image receiving tape may be a continuous supply. Accordingly, the cassette may be used with a label printer which includes a cutter for cutting off a length of image receiving tape after the image has been printed.

[0013] Alternatively, the image receiving medium may comprise a continuous backing layer whilst an image receiving layer is in the form of pre-cut labels. In this example, the label can be printed and then peeled off from the backing layer. Alternatively, the labels may be connected together with no backing layer. The labels may be separated by lines indicating where a user should cut or lines of weakness such as perforations.

[0014] As mentioned, the cassette may hold an image receiving medium or an ink ribbon. In some embodiments, the cassette may house and image receiving medium and an ink ribbon.

[0015] Some cassettes may be used with a thermal label printer where an image is generated by the activation of a thermal printhead against the ink ribbon such that ink from the ink ribbon is transferred onto the image receiving medium at a print zone.

[0016] It should be appreciated that in some embodiments of the present invention, where the cassette just houses an image receiving medium, that image receiving medium may be in the form of a direct thermal image receiving medium. A direct thermal image receiving medium is such that an image can be created directly onto or within the direct thermal image receiving medium by a thermal printhead, without the requirement of an ink ribbon.

[0017] It should be appreciated that in an alternative embodiment, the cassette may only house an image receiving medium. An ink ribbon may be housed in a separate cassette.

[0018] Alternative embodiments of the invention may have different image receiving medium structures. For example a protective layer may in some embodiments be applied to the printed surface after printing. In other embodiments of the invention, a protective layer may be provided on the image receiving surface and printing occurs through the protective layer. In yet another embodiment, an image is applied to a surface of an image receiving medium and then the image receiving medium is adhered to the backing layer, with the printed image being on the side of the image receiving medium being adhered to the backing layer. In some embodiments, there may be not backing layer. These embodiments may have a layer of adhesive. In alternative embodiments, there may not be any adhesive. These are just some examples of the possible structure of the image receiving medium and other structures are of course possible.

[0019] In some embodiments of the invention, a particular label printer may be arranged to receive a range of different cassettes housing different image receiving

mediums and/or ink ribbons. The printing media may be different in type and/or width. The cassettes may differ in their thickness depending on the size of the printing media accommodated therein.

[0020] Mention has been made of the use of a thermal print head. It should be appreciated that alternative embodiments may use different printing technologies such as ink jet or any other suitable printing technique.

[0021] Some cassettes and label printers embodying the present invention will now be described with reference to the accompanying Figures.

[0022] Referring first particularly to Figure 1, the cassette 2 has a housing 4. The housing 4 is arranged to contain a supply of image receiving medium 6 and an ink ribbon 8. The ink ribbon 8 is provided on an ink ribbon supply spool 12 and is, when used, taken up by the ink ribbon take-up spool 10. When the cassette is inserted into a cassette bay 40, the image receiving medium 6 and ink ribbon 8 are arranged to pass in overlap past a print head 22 which acts against a rotatable platen 24. The print head 22 and platen 24 can be seen from Figure 6.

[0023] In this embodiment, the print head 22 is fixed in position and the moveable platen 24 is able not only to rotate about its axis but also to move between a non-printing position in which the platen is spaced apart from the print head and a printing position in which the platen 24 acts against the print head 22. It should be appreciated that in alternative embodiments of the present invention, the platen may be fixed into position, for example only able to rotate about its axis and the print head moves between the printing and non-printing positions. In a further alternative embodiment, both the print head and the platen may be arranged to be moved one towards the other so as to, for example move from a non-printing position to a printing position.

[0024] The print head 22 is arranged, when the cassette is in the cassette receiving bay to be accommodated in a print area 16 defined in the cassette. This print area can be seen from Figures 1 and 2. The print head is arranged to be accommodated in the print area 16 with the image receiving medium 6 and ink ribbon 8 passing in overlap between the print head 22 and the platen 24. A print zone is thus provided between the print head 22 and the platen 24.

[0025] The ink ribbon 8 is taken from the ink ribbon supply spool 12 and after passing through the print zone is taken up by the ink ribbon take-up spool 10. As can be seen from Figure 2, the housing of the cassette has a first opening 20 aligned with the ink ribbon supply spool. This first opening is provided on the side of the cassette which faces the cassette receiving bay and is arranged to receive a first member 25 provided in the cassette receiving bay. The underside of the cassette has a second opening 18 aligned with the ink ribbon take up spool. This second opening 18 is arranged to receive a second member 26 provided in the cassette receiving bay. These first and second members 25 and 26 engage the ink rib-

bon supply spool 12 and the ink ribbon take-up spool 10. One or both of the engagement members 25 and 26 may be driven so as to be able to drive the ink ribbon forwards and/or in the reverse direction.

[0026] As shown in Figure 2, a cover 28 is provided on a cover side 30 of the cassette 2. The cover side 30 is one of the four sides which extend between a first surface 31 and a second surface 29 and can be from Figure 14. These four sides are parallel to the respective axes defined by each of the first and second members 25 and 26 and the axes about which the image receiving medium supply 6 and the ink ribbon supply 12 rotate. In other words, the four sides are perpendicular to the first and second surfaces. The cover side 30 is the side which has the opening 33 through which the image receiving medium and the ink ribbon exits the cassette. The cover side 30 is the side which generally defines the print zone and which defines (with the cover 28) the exit 35 of the cassette. The cover 28 is arranged to move along the plane of side 30 between the closed position, which is shown in Figure 2 and the open position which is shown in Figure 11. The cover is thus arranged to move in the plane of side 30, in the direction of arrow B. The cover 28 is arranged to move back and forth along the length direction of the side. In some embodiments, the cover may move in the width direction of the slide, have a rotational movement, or move in a combination of any of these directions. When cover 28 is in the closed position, the image receiving medium and ink ribbon adjacent to the print area 16 are covered and hence protected from the exposure to foreign matter. When the cover is open, as shown in Figure 11, the image receiving medium and ink ribbon are exposed so that the platen can contact the image receiving medium, when acting against the print head and printing can be performed.

[0027] The movement of the cover will now be described in more detail. Reference is made to Figure 3 which shows part of the cassette of Figure 1 in greater detail. The cover 28 has an opening 32. The opening 32 is arranged, when the cover is in the closed position to engage a locking projection 34 of the cassette. The projection 34 engages, that is received in, the opening 32 in the cover and thus prevents the cover from being opened when the cassette is outside the label printer. The projection 34 is provided on a generally planar member 38 which extends generally parallel to the cover 28. This member 38 is made of a resilient material such that it is normally biased to the position shown in Figure 3. Alternatively or additionally the member 38 itself may be supported or mounted such that the projection 34 is biased to the position shown in Figure 3. In this scenario, the member 38 may be relatively rigid. Alternatively or additionally, the projection itself may be of a resilient material.

[0028] Reference is now made to Figure 14 which shows an exploded view of a cassette embodying the present invention. The cassette 2 comprises a first part 202 and a second part 204. The first part 202 and the second 204 define the housing 4 of the cassette.

[0029] The cassette is arranged to house the supply of image receiving medium 6. As can be seen, the image receiving medium is provided on a spool 212. The spool 212 is arranged to spool engagement members 216 provided in the first half 202. Similar spool engagement members may be provided in the other half 204. These spool engagement members 216 are arranged to fit inside the spool 212 to position the spool 212 in the cassette. The spool engagement members 216 are positioned such that the image receiving medium spool is held in place but the spool is arranged to rotate about the spool engagement members 216.

[0030] The cassette is also provided with the cover 28. The member 38 has the first locking projection 34 which is arranged to engage the opening 32 of the cover 28 to hold the cover in the closed position. The cassette also has an ink ribbon subassembly 214 which supports the ink ribbon take up spool 10 and the ink ribbon supply spool 12.

[0031] Reference is now made to Figures 4, 5 and 6 which show parts of the label printer which are arranged to cause the unlocking of the cover member. In particular, Figure 6 shows a cassette receiving bay 40. On the side 42 of the cassette receiving bay, which faces the cover, is an unlocking mechanism 50 for unlocking the cover. A perspective view of this mechanism is shown in Figure 4 whilst a cross-sectional view of this mechanism along line F-F is shown in Figure 5. The unlocking mechanism 50 has a sliding part 52 which is arranged to move with respect to a housing 60. The sliding part 52 is configured to move in the direction of arrow C. This direction is parallel to the longitudinal length of the cover. The sliding part 52 moves in the same back and forth directions as the cover. The housing 60 is fixed in position in the tape printer and does not move.

[0032] The sliding part 52 has an opening 53 through which an unlock member 54 projects. When the unlocking mechanism 50 is in the cassette receiving bay 40, the unlock member 54 projects through the opening 53 and extends into the cassette receiving bay 40. This unlock member 54 is arranged to control the unlocking of the cover 28 in the cassette. The unlock member is biased to the position in which the unlock member projects through the opening 53. This biasing may be achieved as a result of the material which comprises the unlock member and/or as a result of the way in which the unlock member 54 is supported. The unlock member 54 may be separate from the main body 55 of the sliding part. The unlock member 54 is arranged to be mounted on the main body 55 of the sliding part. The unlock member 54 may be of the same or different material to the main body 55.

[0033] The interaction of the cover of the cassette and the cassette receiving bay of the label printer will now be described in more detail.

[0034] Reference is now made to Figure 7 which shows the unlocking mechanism 50 and in particular the unlock member 54 extending to the cassette receiving

bay 40. Figure 7 shows the cassette receiving bay before a cassette is inserted in the cassette receiving bay. When inserting the cassette, the unlock member 54 deflects in the direction of arrow D so that the unlock member no longer extends into the cassette receiving bay. The sliding part 52 is in the initial position and the main body 55 of the sliding part has not moved. The area behind the unlocking mechanism 50 of the label printer has an opening 57 (shown in figure 8). This opening 57 is configured such that when the unlock member 54 is moved in the direction of arrow D, at least a part of the unlock member 54 can be accommodated in that opening 57. The unlock member 54 is such and/or is mounted so that the unlock member 54 is sufficiently flexible so that it can move in the direction of arrow D.

[0035] Reference is now made to Figure 8. This shows that the cassette is being inserted into the cassette receiving bay but has not been completely received in the cassette receiving bay. For example, the cassette may be two thirds of the way in. The unlock member 54 is shown as having extended into the opening 57 of the label printer. This insertion of the cassette moves the unlock member 54 out of the cassette receiving bay so that the cassette 2 can be inserted in the cassette receiving bay. In this position, the unlock member 54 biases on the outer surface of the cover 28. In contrast to the figure shown in Figure 7, the cassette is now partially shown.

[0036] Reference is now made to Figure 9, the cassette is now completely received in the cassette receiving bay. The unlock member 54 has moved back to the position in which the unlock member 54 extends into the cassette receiving bay. However, because the cassette is now in the cassette receiving bay, the unlock member 54 is aligned with the opening 32 of the cover 28. The unlock member 54 is thus arranged to extend through the opening 32 to move locking projection 34 in a direction towards the inside of the cassette and away from the cover. The locking projection 34 no longer engages the opening of the cover 32 and the cover can now be moved. However, the unlock member 54 is now engaged with the cover 32 such that if the sliding part 52 is moved, the cover 28 will move with the sliding part.

[0037] Before starting to pull with unlock member 54 on the cover in opening 32, it has to be ensured that unlock member 54 does not move into the opening 57. Therefore, the size of opening 32 in the cover is such that the unlock member 54 can move first over such a distance that the unlock member does not move into opening 57 before it interacts with the side of the opening 32 to pull on the cover. This ensures that the unlock member 54 does not moves into opening 57 when it starts to pull on the cover.

[0038] Reference is made to Figure 10 which shows that the cover of the cassette is now in the open configuration, whilst the cassette is in the cassette receiving bay. The unlock member 54 is thus engaged with the opening 32 of the cover. Accordingly, when the sliding

part 52 is moved in the direction of arrow E, the cover is also moved in the direction of arrow E. This movement moves the cover along the plane of the side 30, out of the cassette receiving bay into the label printer. The cover is moved in the direction away from the print area of the cassette and accordingly when in the open position a portion of the cassette cover will be received outside the cassette receiving bay, inside the label printer.

[0039] It should be appreciated that the sliding part 52 is guided by the housing 60 which is sized to allow the sliding mechanism to move in the direction of arrow C. The housing 60 defines a pair of guide rails 62 which guide the movement of the sliding part 52. The sliding part has correspondingly shaped stepped parts 64 which engage the guide rails such that the sliding part is arranged to move in a defined path. Movement of the sliding part may be mechanically controlled or may be controlled by a motor.

[0040] In one embodiment, the movement of the sliding part is controlled by a cover 80 of the cassette receiving bay. As the cover 80 of the cassette receiving bay closes, the sliding part 52 is moved in the direction of arrow C. In one embodiment, the sliding part 52 is mechanically coupled to the cover 28 so that when the cover 80 of the cassette receiving bay is closed, the cover 28 of the cassette is open. Likewise when the cover 80 of the cassette receiving bay is open, the cover 28 of the cassette is closed.

[0041] Alternatively or additionally the sliding part moves against the force of a spring or other biasing member. The spring is located inside the label printer and is not in the cassette receiving bay. In one embodiment, the spring is located in label printer behind the sliding part and the housing, outside the cassette receiving bay. The spring is biased to urge the slider to the position shown in Figure 6 which corresponds to the cover of the cassette being in the closed position. Accordingly, when the cover 80 of the cassette receiving bay is opened, the cover 28 of the cassette will be urged to the closed position by the sliding part 52, the sliding part being moved by the biasing spring.

[0042] In an alternative embodiment of the present invention, movement of the cover 28 may be caused by a motor. The motor can be controlled that when the printer is ready for printing, the sliding member 52 is moved to the open position.

[0043] Reference is made to Figure 12a which shows the under part of the cover 28. Part of the cover which is received in the label printer, outside the cassette receiving bay, when the cover 28 is in the open position. This part of the cover 28 is at the opposite end to the part of the cover 28 which covers the ink ribbon and image receiving medium. In the embodiment shown, an EEPROM (Electrically Erasable Programmable Read-Only Memory) 70 is provided. The EEPROM is located on a PCB (printed circuit board) 71 which is heat staked to the inside of the cover 28. This EEPROM is able to store information about the printing cassette which can be used to control

parameters of the label printer. By way of example only, these parameters comprise one or more of:

Size information on the image receiving medium;
width of the label medium;
where the image receiving medium is in the form of discrete labels,
information associated with the discrete labels; in-
formation on the colour of the image receiving me-
dium; information on the material of the image re-
ceiving medium; ink ribbon colour; information con-
trolling the print head energy; information controlling
print head pressure; template information associat-
ed with the image receiving medium; amount of im-
age receiving medium used; amount of image re-
ceiving medium remaining; or any other suitable in-
formation.

[0044] To read the EEPROM 70, the label printer is provided with contacts 77 which contact corresponding contacts 73 on the PCB 71 on which the EEPROM 70 is mounted to allow the EEPROM to be read. As can be seen from Figure 12b, a series of contacts 77 are provided on a PCB 79 in the label printer. When the cover is in the open position, the contacts 73 on the cover are arranged to be in contact with the contacts 77 of the label printer.

[0045] As can be seen from Figure 12a, the underside of the cover includes a rib 160 which defines the maximum distance that the cover can be moved in the direction of opening. This rib extends in the width direction of the cassette. Once the locking projection 34 is lifted out of opening 32 and the cover is moved, the locking projection 34 is biasing on the inside of the cover. The rib 160 on the inside of the cover interacts with the locking projection 34 when the cover is in the maximum opened position. The inside of the cover also has a pair of parallel longitudinal guide rails 75 which guide the movement of the locking projection 34 to thereby guide the movement of the cover.

[0046] It should be appreciated that in this embodiment an EEPROM has been used. However, other suitable method of providing information to be used are: an RF (Radio frequency) tag, a barcode, a pattern of contacts which provides information for example in the form of a binary code.

[0047] In one embodiment of the present invention, the label printer is configured such that printing is prevented unless the cover is in the correct open position. In order to verify this, the position of the cover 28 itself may be detected or in an alternative embodiment of the present invention, the determination that the cover is in the correct open position is made when the detector of the label printer connects to the EEPROM 70 or the like. In this way, additional circuitry is avoided.

[0048] The position of the cover may be determined by means of a light source and detector having the path there between interrupted by the cover, contacts provid-

ed on the cover which, when the cover is open, close a circuit, by the cover activating a switch or with any other suitable mechanism.

[0049] The movement of the cover 28 is also arranged to control a platen roller lock 400 as will be described with reference to Figures 15 to 18. The platen roller lock 400 is arranged to have a first end 402. The first end 402 is arranged to be actuated by the cover 28. When the cover 28 is in the closed position, the first end 402 of the platen roller lock 400 is in a position which causes the platen roller lock 400 to prevent the platen from being moved towards the print head. The platen roller locking member 400 is mounted to pivot about a pivot point 404. The pivot point 404 is between the first end 402 and a second end 406 of the platen roller locking member

[0050] Figure 15 shows the first end 402 in the position such that the platen roller is prevented from moving by the second end 406. The first end 402 is arranged to extend into the part of the label printer which receives the cover when the cover is in the open position.

[0051] Initially, as shown in Figure 18 and Figure 15, the second end 406 engages a stop 405 of a platen roller support 408. Because the second end 406 engages against the stop 405, the platen roller is prevented from moving towards the print head.

[0052] Reference is made to Figure 16 and 17 which shows the cover 28 in the open position. As can be seen, the cover 28 has moved the first end 402 in the direction of arrow M, away from the space which accommodates the cover when in the open position. When the cover 28 moves the first end 402 in the direction of arrow M, the second end 406 is moved in the direction of arrow N, that is in an opposite direction to arrow M, about the pivot point 404.

[0053] When the cover has moved the first end 402 in the direction of arrow M, the second end 406 is moved to the position as shown in Figures 16 and 17. The second end 406 is moved in the direction of arrow N out of contact with the stop 405 of the platen roller support. Accordingly, the platen is then able to move towards the print head. Thus, as the cover is opened the platen can be moved towards the print head. When the cover is closed or there is no cassette present, the platen roller support 408 is prevented from moving by the stop 405.

[0054] The platen locking member 400 is biased to the position in which the platen roller support 400 is prevented from moving.

[0055] Reference is made to Figure 13 which shows basic circuitry for controlling the label printer. There is a microprocessor chip 300. In practice there may be more than one chip. This chip is shown diagrammatically as having read-only memory 302, a processing part 301 and random access memory capacity indicated diagrammatically by RAM 304. However, this is by way of example and different memory and processing arrangements may be used in alternative embodiments. The microprocessor chip or chips are arranged to receive label data from a data input device such as a keyboard. Alternatively or

additionally, the data input device may comprise a touch screen and/or a data port (e.g. a USB port) arranged to receive data from a PC or the like.

[0056] The microprocessor chip or chips 300 are arranged to output data to drive a display 310 via a display driver 309. That display may display a label to be printed (or a part thereof) and/or a message for the user. This display may for example be a LCD display or a touch screen. The display driving capacity may be provided as part of the microprocessor chip or chips.

[0057] The microprocessor chip or chips are also arranged to output data to drive the print head 322 so that label data is printed onto the image receiving medium to form a label.

[0058] The microprocessor chip or chips 300 may also control a motor 307 for driving the image receiving medium.

[0059] Finally, the microprocessor chip or chips may also control a cutting mechanism 358 to allow a length of tape to be cut off. In alternative embodiments of the present invention, a manual cutter may alternatively be provided.

[0060] In one embodiment of the present invention, the label printer is a stand-alone printer. This stand-alone printer may operate independently or may be connected to receive data from a PC. In alternative embodiments of the present invention, the label printer may be a PC printer and as such, the keyboard and display may be omitted as the data may be input and displayed on the PC. The PC then acts as an input device for the printer.

Claims

1. A label printer cassette (2) comprising:

a supply of print medium (6, 8);
a housing (4) for housing said print medium (6, 8), said housing (4) having first and second surfaces (29, 31) and at least one side (30) extending between said first and second surfaces (29, 31); and
a cover (28) provided on one (30) of said sides movable along the length of the said one side (30) between a first position in which said print medium (6, 8) is exposed for printing and a second position in which said print medium (6, 8) is protected;

characterised in that said cover (28) comprises cassette information providing means (70, 73) comprising at least one of; an EEPROM (70); at least one contact (73); a pattern of contacts (73); an RF tag; and a bar code.

2. cassette as claimed in claim 1, wherein said cover comprises an opening, wherein said opening is configured such that in use, when said cassette is in a label printer, a moving means of said printer is re-

ceived in said opening to move said cover from one of said first and second positions to the other of said first and second positions.

3. A cassette as claimed in claims 1 or 2, wherein one of said cover (28) and said cassette (2) comprises an opening (32) and the other of said cover (28) and said cassette (2) comprises a projection (34), wherein said opening (32) and said projection (34) are engageable one with the other to lock the cover (28) in one of said first and second positions.

4. A cassette as claimed in claim 3, wherein said projection (34) is configured to be moved between a first projection position, in which said projection (34) is engaged in said opening (32), and a second projection position, in which said projection (34) is unengaged from said opening (32) such that said cover (28) can be moved from said second position to said first position.

5. A cassette as claimed in claim 4, wherein said opening (32) is configured such that an unlocking means of a printer is receivable in said opening (32) to move the projection (34) to the second projection position, such that said cover (32) is then movable from said second position to said first position.

6. A cassette (2) as claimed in any preceding claim, wherein stop means (160) are provided on said cover (28) for preventing the cover (28) moving from the first position in a direction away from said second position.

7. A cassette (2) as claimed in claim 6 when appended to claim 3, wherein said projection (34) is configured to act against the stop means (160) to prevent the cover (28) being moved from the first position in a direction away from said second position.

8. A cassette (2) as claimed in any preceding claim, wherein said cover (28) comprises a pair of guides (75) for guiding the movement of the cover (28) between said first and second positions.

9. A cassette (2) as claimed in claim 8, wherein the cassette (2) further comprises a guiding means, wherein the guiding means is configured to be guided between said first and second positions between said pair of guides (75).

10. A cassette (2) as claimed in claim 6 when appended to claim 3, wherein said projection (34) is configured to be guided between said first and second positions between said pair of guides (75).

11. A cassette as claimed in any preceding claim, wherein said cover is configured to control a platen lock

member of a label printer, in use.

12. A cassette as claimed in claim 11 wherein said cover is configured to control the platen lock member to be in a locked position when in the second position and to be unlocked when in the first position. 5
13. A cassette as claimed in any preceding claim, wherein said cover comprises at least one contact which when said cassette is in said label printer and the cover is in the second position is configured to complete a detection circuit in said label printer. 10
14. A cassette (2) as claimed in claim 1, wherein said cassette information providing means (70, 73) is provided on an inner side of said cover (28) such that when said cover (28) is in said second position, said cassette information providing means (70, 73) are protected and when said cover (28) is in the first position said cassette information providing means (70, 73) are exposed. 15
15. A cassette as claimed in any preceding claim, wherein said cassette information providing means (70, 73) are configured to provide one or more of the following information; size information on an image receiving medium; width of an image receiving medium; where an image receiving medium is in the form of discrete labels, information associated with the discrete labels; information on a colour of a image receiving medium; information on a material of an image receiving medium; ink ribbon colour; information controlling the print head energy; information controlling print head pressure; template information associated with image receiving medium; amount of image receiving medium used; amount of image receiving medium remaining; and cassette presence information. 20 25 30 35

Patentansprüche

1. Etikettendruckerkassette (2), umfassend:

einen Vorrat an Druckmedium (6, 8);
ein Gehäuse (4) zur Unterbringung des besagten Druckmediums (6, 8), wobei das besagte Gehäuse (4) erste und zweite Oberflächen (29, 31) aufweist und sich zumindest eine Seite (30) zwischen den besagten ersten und zweiten Oberflächen (29, 31) erstreckt; und
eine Abdeckung (28), die auf einer (30) der besagten Seiten bewegbar entlang der Länge der besagten einen Seiten (30) zwischen einer ersten Position, in der das besagte Druckmedium (6, 8) zum Drucken freigelegt ist und einer zweiten Position, in der das besagte Druckmedium (6, 8) geschützt ist, vorgesehen ist; 45 50 55

dadurch gekennzeichnet, dass die besagte Abdeckung (28) Bereitstellungsmittel (70, 73) für Kassettensinformation umfasst, die zumindest eins von; einem EEPROM (70); zumindest einem Kontakt (73); einem Muster von Kontakten (73); einem RF-Tag; und einem Barcode umfassen.

2. Kassette, wie in Anspruch 1 beansprucht, wobei die besagte Abdeckung eine Öffnung umfasst, wobei die besagte Öffnung derart konfiguriert ist, dass im Gebrauch, wenn sich die besagte Kassette in einem Etikettendrucker befindet, ein Bewegungsmittel des besagten Druckers in der besagten Öffnung aufgenommen wird, um die besagte Abdeckung aus einer der besagten ersten und zweiten Positionen in die andere der besagten ersten und zweiten Positionen zu bewegen.
3. Kassette, wie in Ansprüchen 1 oder 2 beansprucht, wobei eins der besagten Abdeckung (28) und der besagten Kassette (2) eine Öffnung (32) umfasst und die andere der besagten Abdeckung (28) und der besagten Kassette (2) einen Vorsprung (34) umfasst, wobei die besagte Öffnung (32) und der besagte Vorsprung (34) in einander rastbar sind, um die Abdeckung (28) in einer der besagten ersten und zweiten Positionen zu verriegeln.
4. Kassette, wie in Anspruch 3 beansprucht, wobei der besagte Vorsprung (34) konfiguriert ist, sich zwischen einer ersten Vorsprungposition, in welcher der besagte Vorsprung (34) in die besagte Öffnung (32) eingerastet ist, und einer zweiten Vorsprungposition zu bewegen ist, in welcher der besagte Vorsprung (34) aus der besagten Öffnung (32) derart ausgerastet ist, dass die besagte Abdeckung (28) aus der besagten zweiten Position in die besagte erste Position bewegt werden kann.
5. Kassette, wie in Anspruch 4 beansprucht, wobei die besagte Öffnung (32) derart konfiguriert ist, dass ein Entriegelungsmittel eines Druckers in die besagte Öffnung (32) aufnehmbar ist, um den Vorsprung (34) derart in die zweite Vorsprungposition zu bewegen, dass die besagte Abdeckung (32) dann aus der besagten zweiten Position in die besagte erste Position bewegbar ist.
6. Kassette (2), wie in einem beliebigen vorhergehenden Anspruch beansprucht, wobei Anschlagmittel (160) auf der besagten Abdeckung (28) bereitgestellt sind, um zu verhindern, dass sich die Abdeckung (28) aus der ersten Position in eine Richtung weg von der besagten zweiten Position bewegt.
7. Kassette (2), wie in Anspruch 6 beansprucht, wenn von Anspruch 3 abhängig, wobei der besagte Vorsprung (34) konfiguriert ist, gegen die Anschlagmittel

(160) zu wirken, um zu verhindern, dass die Abdeckung (28) aus der ersten Position in eine Richtung weg von der besagten zweiten Position bewegt wird.

8. Kassette (2), wie in einem beliebigen vorhergehenden Anspruch beansprucht, wobei die besagte Abdeckung (28) ein Paar Führungen (75) zum Führen der Bewegung der Abdeckung (28) zwischen den besagten ersten und zweiten Positionen umfasst. 5
9. Kassette (2), wie in Anspruch 8 beansprucht, wobei die Kassette (2) weiter ein Führungsmittel umfasst, wobei das Führungsmittel konfiguriert ist, zwischen den besagten ersten und zweiten Positionen zwischen dem besagten Paar Führungen (75) geführt zu werden. 10
10. Kassette (2), wie in Anspruch 6 beansprucht, wenn von Anspruch 3 abhängig, wobei der besagte Vorsprung (34) konfiguriert ist, zwischen den besagten ersten und zweiten Positionen zwischen dem besagten Paar Führungen (75) geführt zu werden. 15
11. Kassette, wie in einem beliebigen vorhergehenden Anspruch beansprucht, wobei die besagte Abdeckung konfiguriert ist, im Gebrauch, ein Walzenverriegelungselement eines Etikettendruckers zu steuern. 20
12. Kassette, wie in Anspruch 11 beansprucht, wobei die besagte Abdeckung konfiguriert ist, das Walzenverriegelungselement zu steuern in einer verriegelten Position zu sein, wenn es sich in der zweiten Position befindet und entriegelt zu sein, wenn es sich in der ersten Position befindet. 25
13. Kassette, wie in einem beliebigen vorhergehenden Anspruch beansprucht, wobei die besagte Abdeckung zumindest einen Kontakt umfasst, der, wenn sich die besagte Kassette im besagten Etikettendrucker befindet und sich die Abdeckung in der zweiten Position befindet, konfiguriert ist, einen Detektionsschaltkreis im besagten Etikettendrucker zu vervollständigen. 30
14. Kassette (2), wie in Anspruch 1 beansprucht, wobei das besagte Bereitstellungsmittel (70, 73) für Kassetteneinformation auf einer Innenseite der besagten Abdeckung (28) derart bereitgestellt ist, dass, wenn sich die besagte Abdeckung (28) in der besagten zweiten Position befindet, die besagten Bereitstellungsmittel (70, 73) für Kassetteneinformation geschützt sind und, wenn sich die besagte Abdeckung (28) in der ersten Position befindet, die besagten Bereitstellungsmittel (70, 73) für Kassetteneinformation freigelegt sind. 35
15. Kassette, wie in einem beliebigen vorhergehenden 40

Anspruch beansprucht, wobei die besagten Bereitstellungsmittel (70, 73) für Kassetteneinformation konfiguriert sind, eine oder mehrere der folgenden Information bereitzustellen; Größeninformation über ein Image-Empfangsmedium; Breite eines Image-Empfangsmediums; wo ein Image-Empfangsmedium in Form diskreter Etiketten ist, mit den diskreten Etiketten verbundene Information; Information über eine Farbe eines Image-Empfangsmediums; Information über ein Material eines Image-Empfangsmediums; Farbbandfarbe; Information, welche die Druckkopfenergie steuert; Information, welche den Druckkopfdruck steuert; Schabloneninformation, die mit dem Image-Empfangsmedium verbunden ist; Umfang des verwendeten Image-Empfangsmediums; Umfang des verbliebenen Image-Empfangsmediums; und Kassetten-Anwesenheitsinformation.

Revendications

1. Une cassette pour imprimante d'étiquettes (2) comportant :

une réserve du support d'impression (6, 8) ;
un boîtier (4) où se trouve ce support d'impression (6, 8), ledit boîtier (4) comprenant les première et seconde surfaces (29, 31) et au moins un côté (30) s'étendant entre ces première et seconde surfaces (29, 31) ; et
un cache (28) prévu sur l'un (30) de ces côtés, glissant le long dudit côté (30) entre une première position dans laquelle ce support d'impression (6, 8) est exposé pour l'impression et une deuxième position dans laquelle ce support d'impression (6, 8) est protégé ;

caractérisé en ce que le cache (28) comprend un système de transmission d'informations de la cassette (70, 73) comportant au moins un élément parmi les suivants : une EEPROM (70) ; au moins un contact (73) ; un réseau de contacts (73) ; une étiquette RF ; et un code-barres.

2. Une cassette selon la revendication 1, où le cache comporte une ouverture, où ladite ouverture est configurée de telle sorte qu'en cours d'utilisation, lorsque la cassette est dans une imprimante d'étiquettes, une méthode de déplacement de l'imprimante est reçue dans cette ouverture afin de déplacer ce cache de l'une des première ou seconde positions vers l'autre des première et seconde positions. 45
3. Une cassette selon les revendications 1 ou 2, où lorsque l'ouverture (32) est comprise dans le cache (28), le mentonnet (34) est compris dans la cassette (2) et inversement, où ladite ouverture (32) et ledit mentonnet (34) peuvent s'engager l'un dans l'autre 50

pour verrouiller le cache (28) dans l'une des première ou seconde positions.

4. Une cassette selon la revendication 3, où le mentonnet (34) est configuré de telle manière à être déplacé entre une première position du mentonnet, où le mentonnet (34) est engagé dans ladite ouverture (32), et une seconde position du mentonnet où le mentonnet (34) n'est pas engagé dans l'ouverture (32) de telle manière à ce que le cache (28) puisse être déplacé et passer de ladite seconde position à ladite première position. 5
5. Une cassette selon la revendication 4, où ladite ouverture (32) est configurée de telle manière qu'un système de déverrouillage d'une imprimante est recevable dans cette ouverture (32) pour déplacer le mentonnet (34) à la seconde position du mentonnet, de telle manière que le cache (32) soit alors déplaçable de ladite seconde position à ladite première position. 10 15
6. Une cassette (2) selon l'une des revendications précédentes, quelle qu'elle soit, où un système de butée (160) est prévu sur ledit cache (28) pour empêcher que le cache (28) ne soit déplacé vers une direction autre que ladite seconde position en partant de la première. 20 25
7. Une cassette (2) selon la revendication 6 lorsqu'elle est ajoutée à la revendication 3, où le mentonnet (34) est configuré pour faire en sorte que le système de butée (160) empêche le cache (28) d'être déplacé dans une direction autre que ladite seconde position en partant de la première. 30 35
8. Une cassette (2) selon l'une des revendications précédentes, quelle qu'elle soit, où le cache (28) comporte deux glissières (75) permettant de guider le mouvement du cache (28) entre lesdites première et deuxième positions. 40
9. Une cassette (2) selon la revendication 8, où la cassette (2) comporte en outre un système de guidage, où le système de guidage est configuré pour être déplacé entre lesdites première et deuxième positions entre ces deux glissières (75). 45
10. Une cassette (2) selon la revendication 6 lorsqu'elle est ajoutée à la revendication 3, où le mentonnet (34) est configuré pour être guidé entre lesdites première et deuxième positions, entre les deux glissières (75). 50
11. Une cassette selon l'une des revendications précédentes, quelle qu'elle soit, où le cache est configuré pour contrôler un élément de verrouillage du cylindre d'impression d'une imprimante d'étiquettes, en 55

cours d'utilisation.

12. Une cassette selon la revendication 11, où ledit cache est configuré pour s'assurer que l'élément de verrouillage du cylindre d'impression est en position verrouillée quand il est dans la seconde position, et qu'il est déverrouillé quand il est dans la première position.
13. Une cassette selon l'une des revendications précédentes, quelle qu'elle soit, où le cache comporte au moins un contact qui, lorsque la cassette est dans l'imprimante d'étiquettes et le cache est dans la deuxième position, est configuré pour compléter un circuit de détection dans l'imprimante d'étiquettes.
14. Une cassette (2) selon la revendication 1, où le système de transmission d'informations de la cassette (70, 73) est prévu sur la partie intérieure dudit cache (28), de telle sorte que lorsque le cache (28) est dans la seconde position, le système de transmission d'informations de la cassette (70, 73) est protégé et quand le cache (28) est dans la première position, le système de transmission d'informations de la cassette (70, 73) est exposé.
15. Une cassette selon l'une des revendications précédentes, quelle qu'elle soit, où ledit système de transmission d'informations de la cassette (70, 73) est configuré pour fournir une ou plusieurs informations parmi les suivantes; informations sur la taille d'un support de réception d'image; largeur d'un support de réception d'image; renseignements associés aux étiquettes discrètes, lorsqu'un support de réception d'image est sous forme d'étiquettes discrètes; informations sur une couleur d'un support de réception d'image; informations sur un matériau d'un support de réception d'image; couleur du ruban encreur; renseignements relatifs au contrôle de l'énergie de la tête d'impression; renseignements relatifs à la pression de la tête d'impression; informations sur le modèle associé au support de réception d'image; quantité du support de réception d'image utilisée; quantité du support de réception d'image restante; et renseignements sur la présence de la cassette.

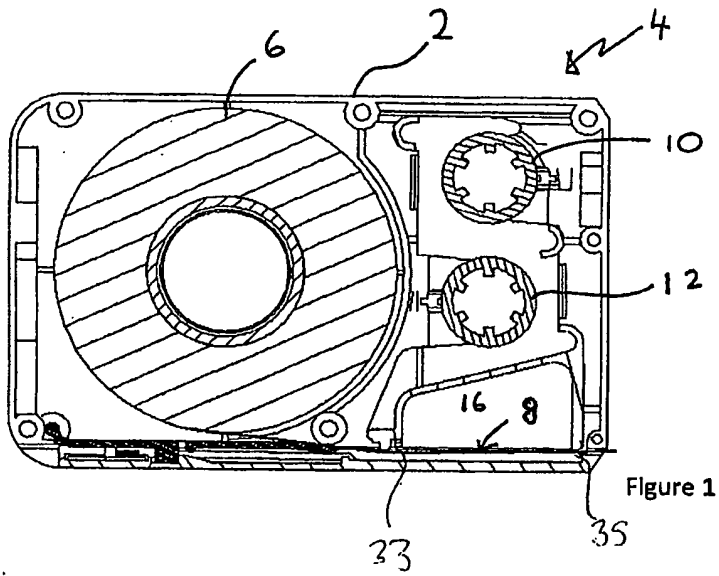


Figure 2

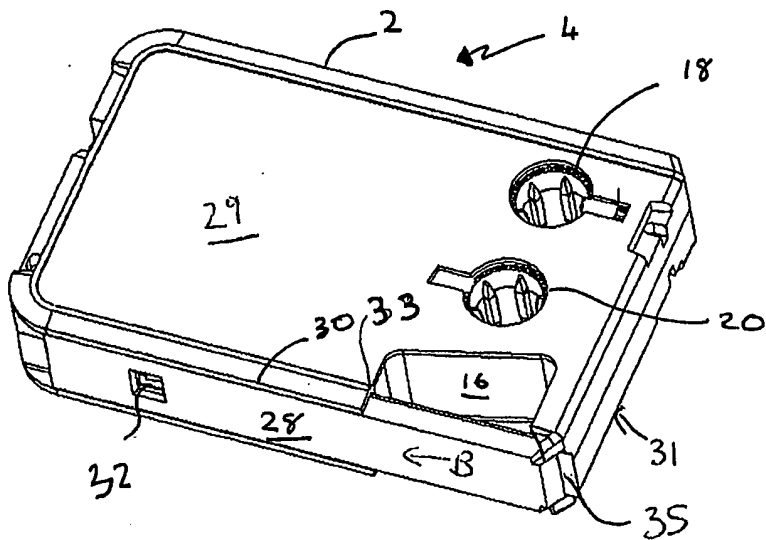
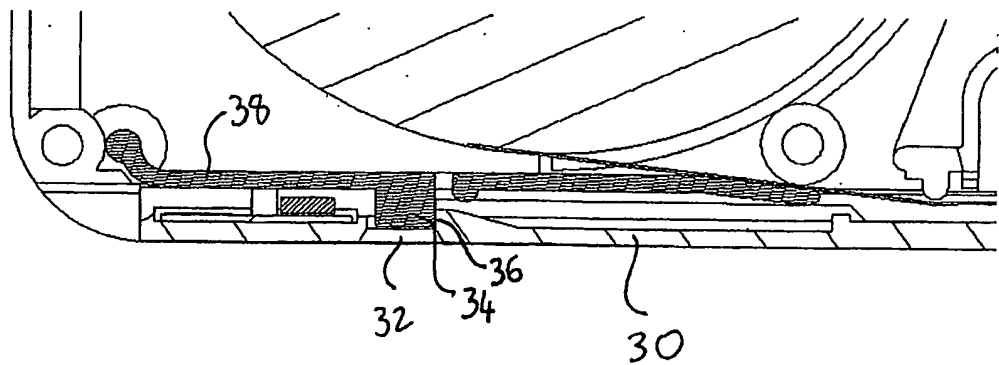
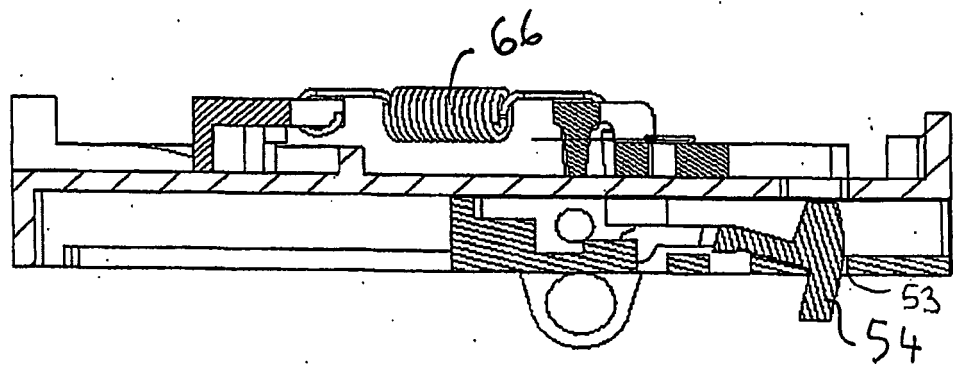
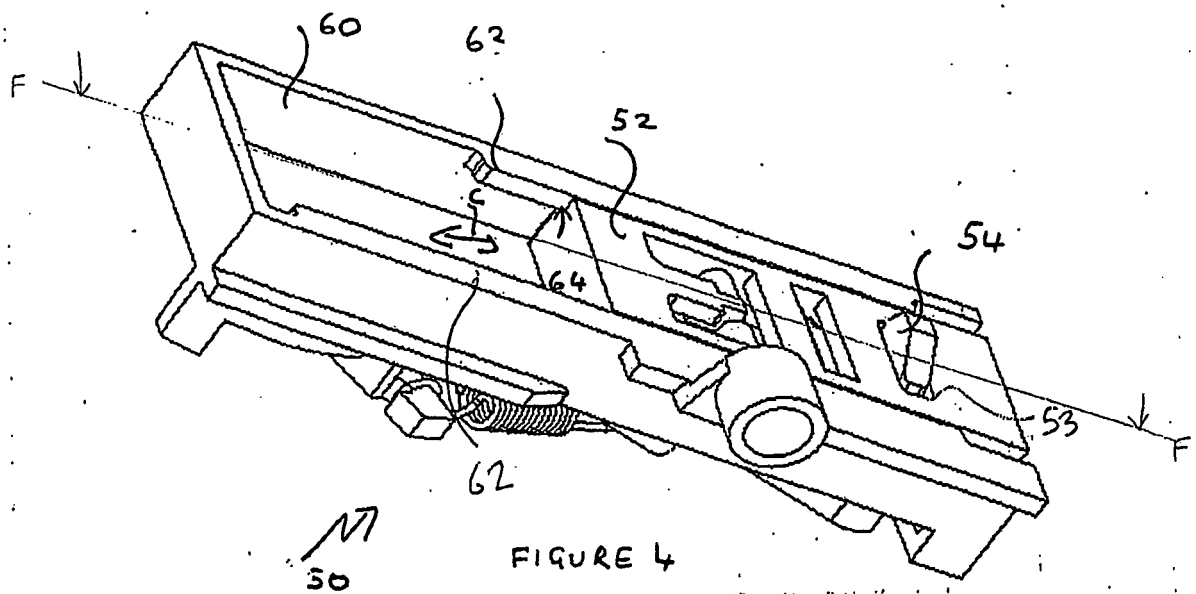


Figure 3





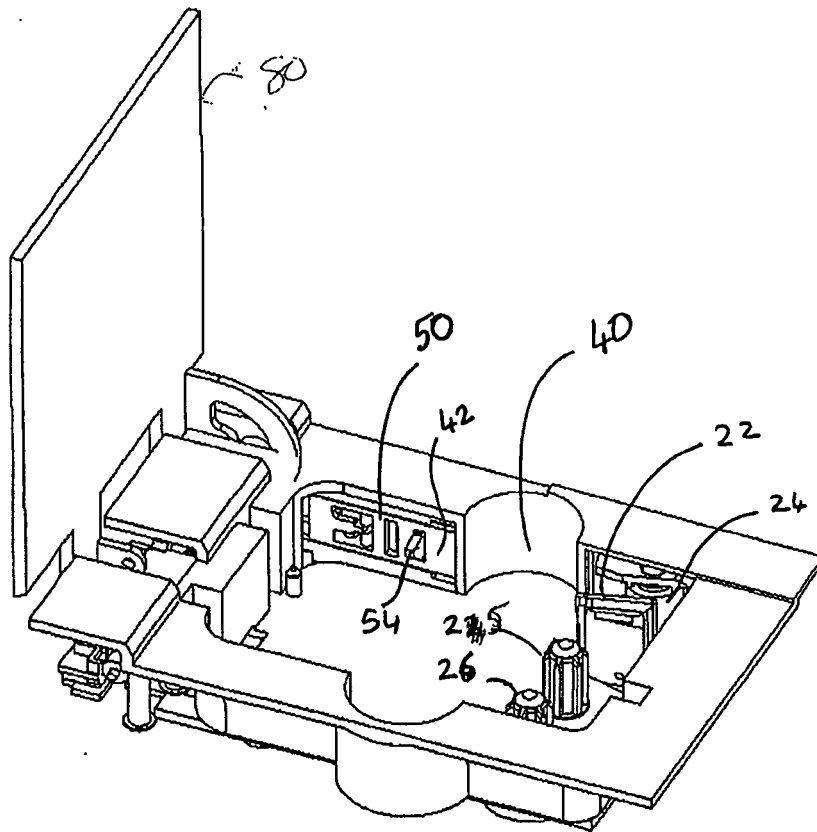


Figure 6

FI

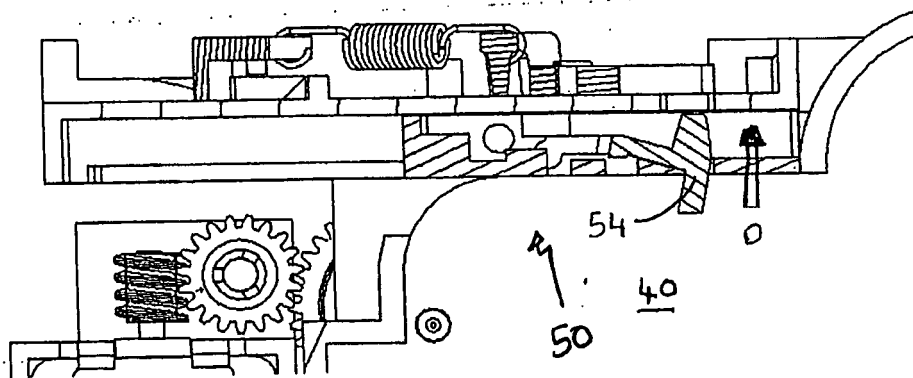


FIGURE 7

FIGURE
10

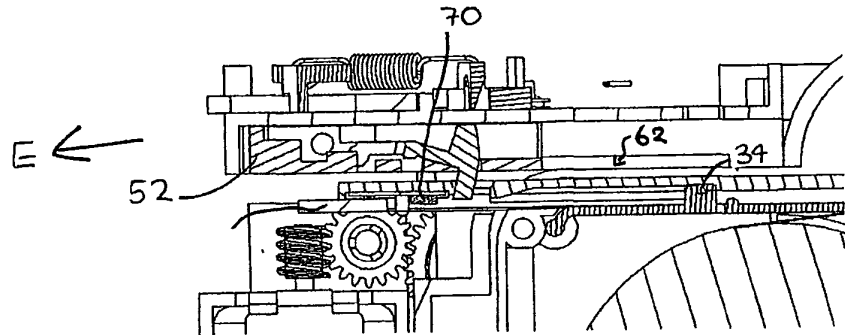


FIGURE 9

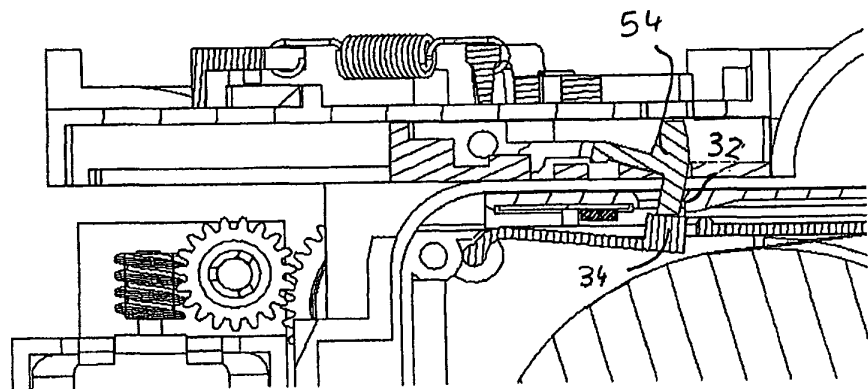
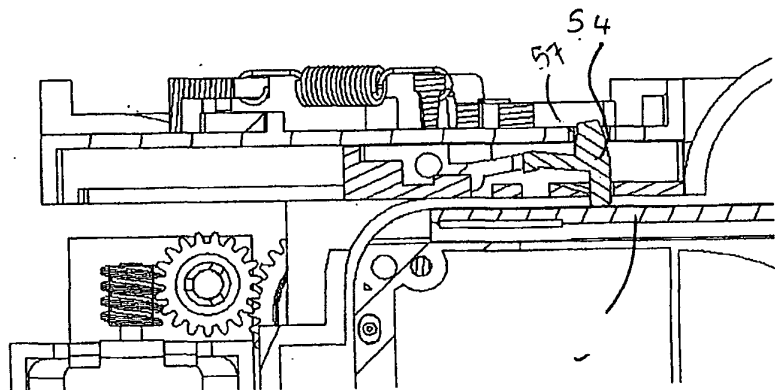


FIGURE 8



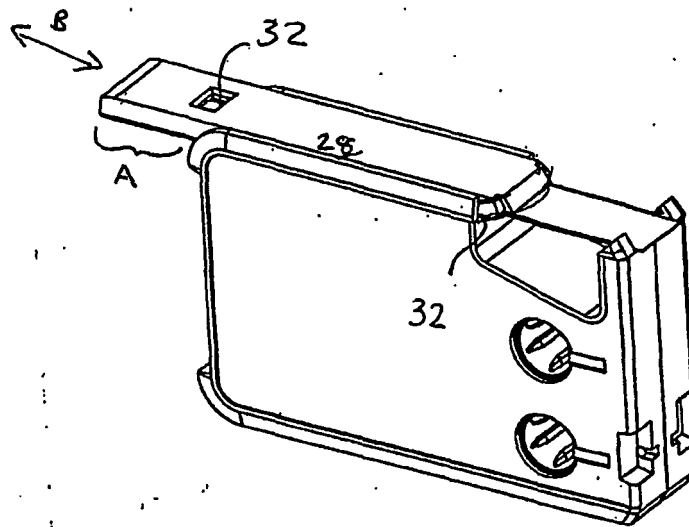


FIGURE 11

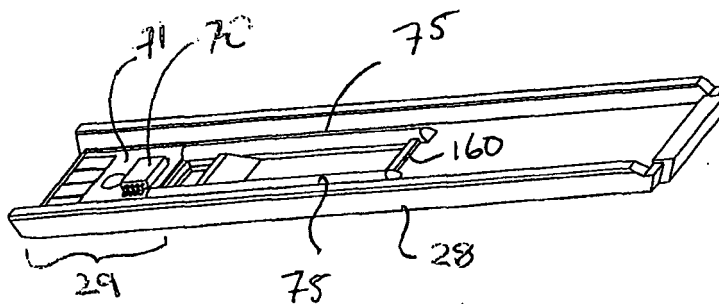


FIGURE 12a

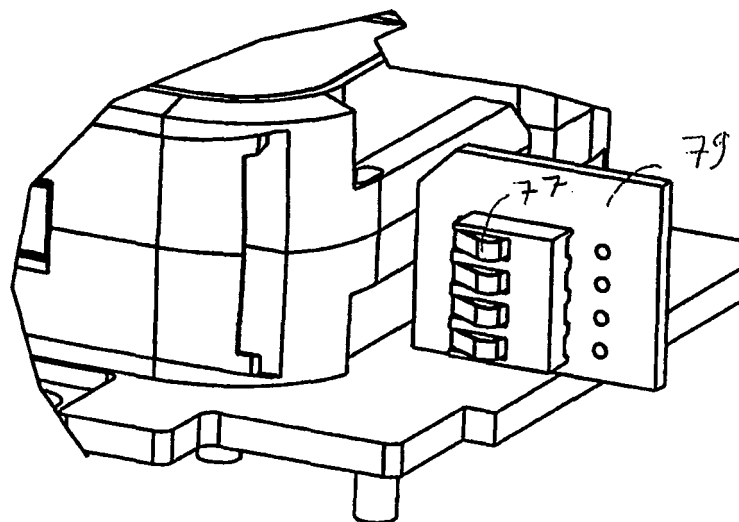
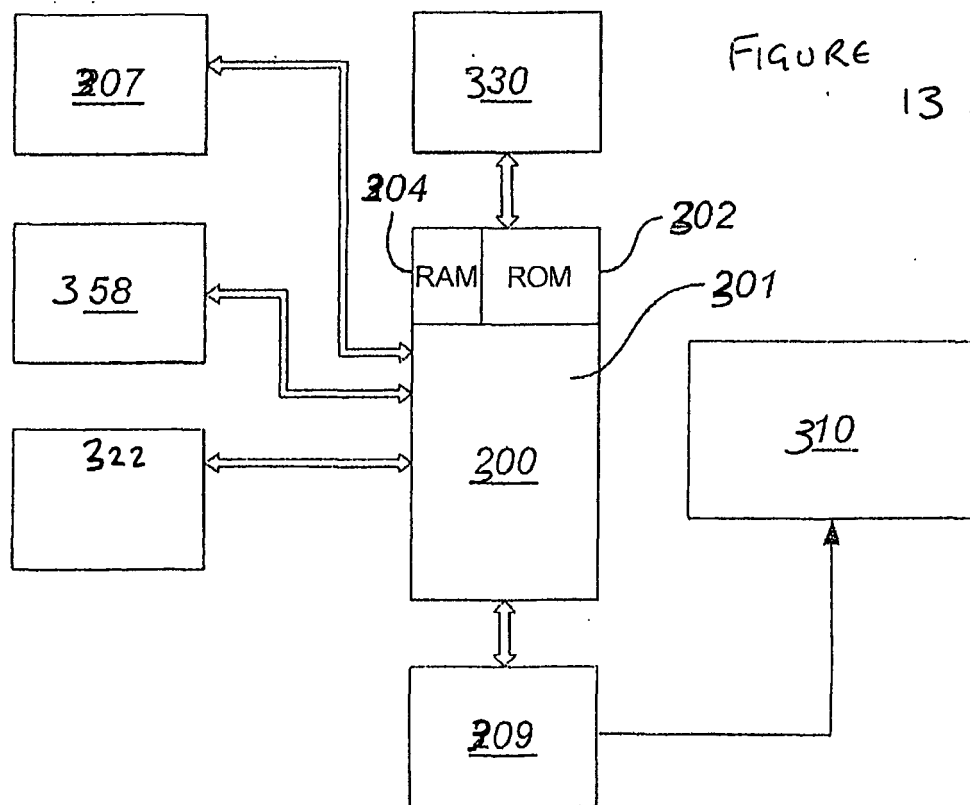
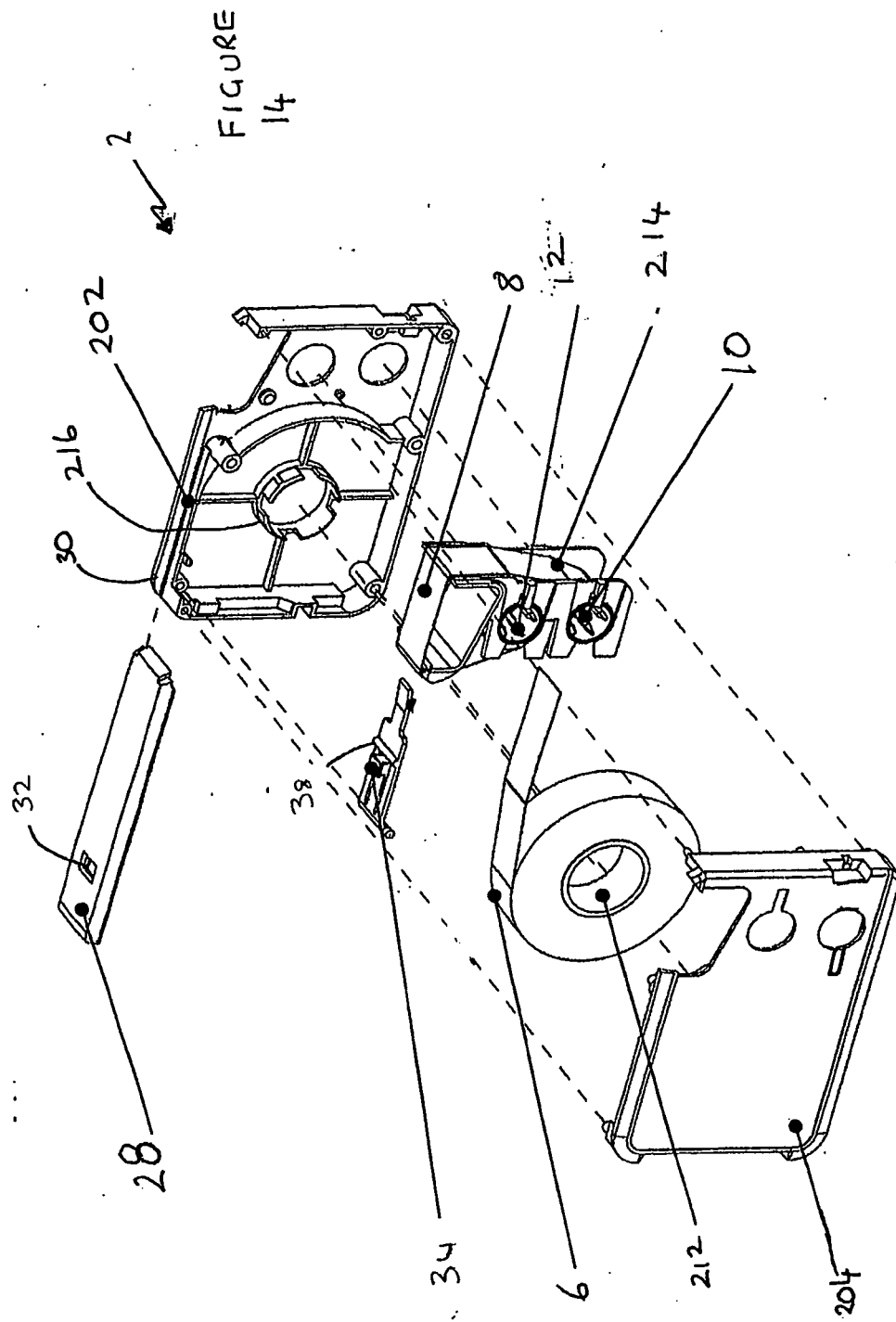


FIGURE 12b





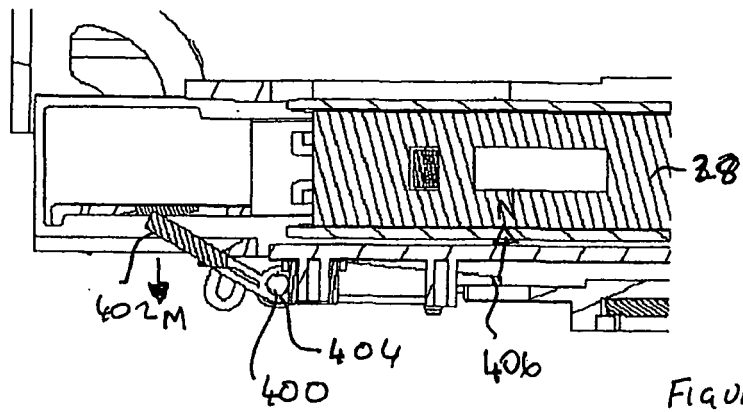


FIGURE 15

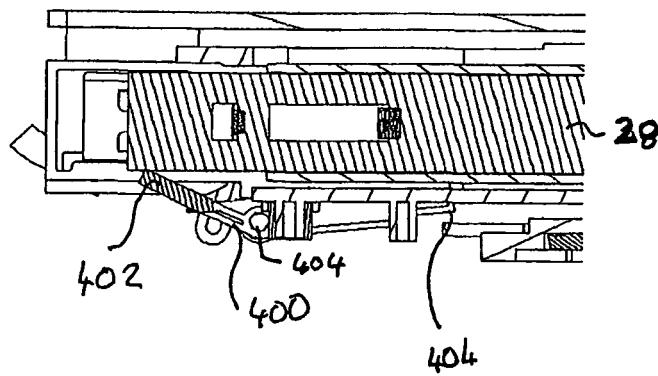


FIGURE 16

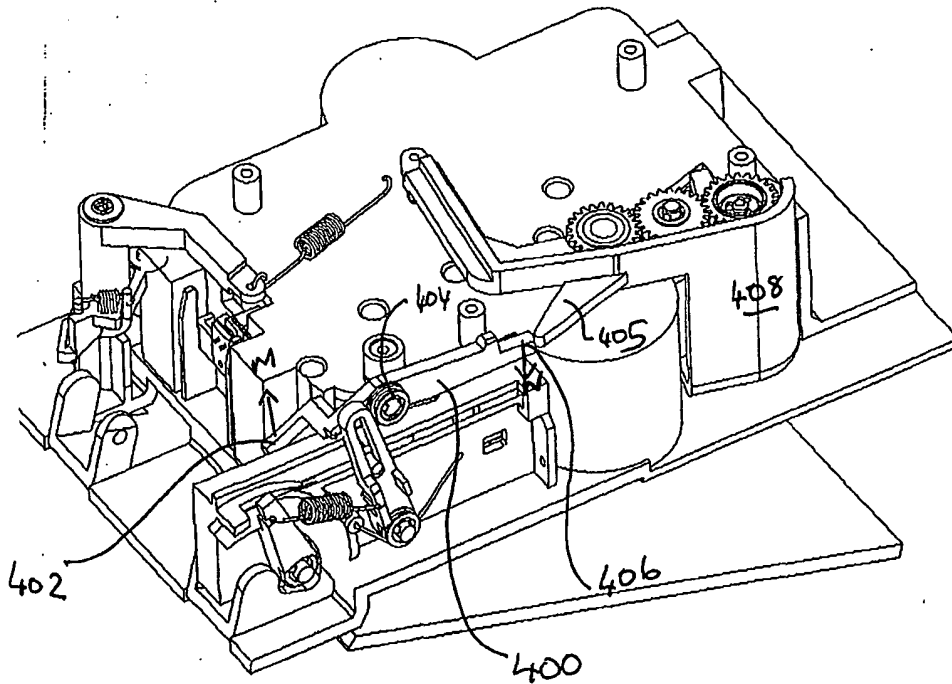
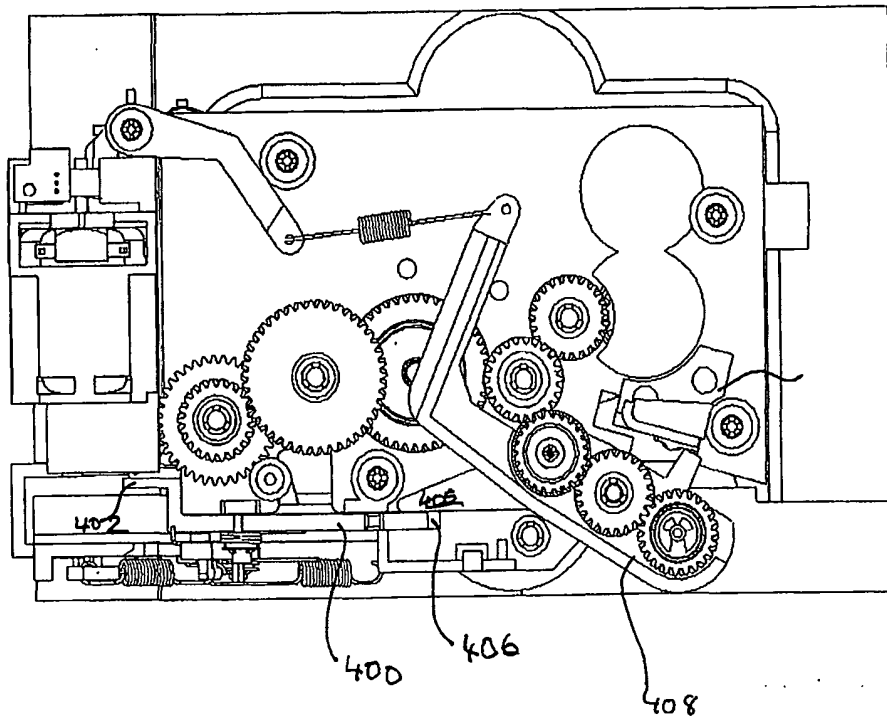


FIGURE
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FIGURE 18



REFERENCES CITED IN THE DESCRIPTION

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